Laycock Primary School

Whole School Science Curriculum Overview 2023-2024

Key areas of knowledge and understanding						
Animals including humans:  This key area covers the Year 1, Year 2, Year 3, Year 4, Year 5 and Year 6 subject content titled 'Animals, including humans' from the National curriculum.	Living things and their habitats:  This key area covers the Year 2, Year 4, Year 5 and Year 6 subject content titled 'Living things and their habitats' and 'Evolution and inheritance' from the National curriculum.	Plants:  This key area covers the Year 1, Year 2 and Year 3 subject content titled 'Plants' from the National curriculum.	Materials:  This key area covers the Year 1, Year 2, Year 3, Year 4 and Year 5 subject content titled 'Everyday materials', 'Uses of everyday materials', 'Rocks', 'States of matter' and 'Properties and changes of materials' from the National curriculum.	Energy:  This key area covers the Year 3, Year 4 and Year 6 subject content titled 'Light', 'Electricity' and 'Sound' from the National curriculum.	Forces, Earth and Space:  This key area covers the Year 1, Year 3 and Year 5 subject content titled 'Seasonal changes', 'Forces and magnets', 'Earth and space' and 'Forces' from the National curriculum.	Making Connections:  This key area ensures that we regularly connect new learning to what pupils have already learned. This includes showing pupils how knowledge from different areas of the curriculum connects. Finding the optimum: the science subject report (Ofsted, 2023)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS						
Year 1	Seasonal Change 	Everyday Materials 	Sensitive Bodies 	Comparing Animals 	Introduction to Plants 	Making Connections 

Year 2	Habitats 	Microhabitats 	Uses of Everyday Materials 	Life Cycles and Health 	Plant Growth 	Making Connections 
Year 3	Movement and Nutrition 	Forces and Magnets 	Rocks and Soil 	Light and Shadows 	Plant Reproduction 	Making Connections 
Year 4	Digestion and Food 	Electricity and Circuits 	States of Matter 	Sound and Vibrations 	Classification and Changing Habitats 	Making Connections 
Year 5	Mixtures and Separation 	Properties and Changes 	Earth and Space 	Life Cycles and Reproduction 	Imbalanced Forces 	Human Timeline  Making Connections 
Year 6	Classifying Big and Small 	Light and Reflection 	Evolution and Inheritance 	Circuits, Batteries and Switches 	Circulation and Exercise 	Making Connections 

Year 1

Autumn 1	**Seasonal changes (6 lessons)** Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and our choices about outfits. They plan and carry out their own weather reports, considering the knowledge required for this job.	Autumn 2	**Everyday materials (6 lessons)** Identifying the difference between objects and materials, children explore their surroundings to find examples of each. They work scientifically by planning tests, making observations and recording data. Pupils use results to a
Spring 1	**Sensitive bodies (6 lessons)** Familiarising themselves with the basic parts of the human body, children investigate their senses through stimulating experiences that highlight how we interact with the world around us. They develop an understanding of the importance of our senses and how science can support those who have lost sensory function.	Spring 2	**Comparing animals (6 lessons)** Studying both local and global animals, children recognise common features and use this information to make comparisons and begin to classify animals. Pupils collect data by surveying class pets, to then explore ways in which this information can be recorded. They develop their understanding of classification by comparing the dietary habits of different animals and use their knowledge and imaginations to take on the role of a zookeeper.
Summer 1	**Introduction to plants (6 lessons)** Identifying the key features of a plant, children describe important structures and make comparisons between different plants. Pupils use investigative skills to record the growth of a plant over time and begin to reflect on factors that will affect its development. They begin to explore how plants are used by humans and grow their own herb garden.	Summer 2	**Making Connections (6 lessons)** In this unit students will revise the key knowledge and skills from the Science curriculum and look at how it can be applied more broadly, across other curriculum areas and in their everyday lives. Students will consider the uses and implication of science today and in the future.

Year 2

Autumn 1	**Habitats (6 lessons)** Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. Pupils explore global habitats, naming plants and animals that can be found there. They learn how a range of different living things depend on each other for food or shelter. Pupils explore this further by creating food chains to show the sequence that living things eat each other for energy to grow and stay healthy.	Autumn 2	**Microhabitats (6 lessons)** Developing their understanding of scientific enquiry, pupils learn that scientists use a range of skills to answer questions. They discover that microhabitats provide what minibeasts need to survive and carry out a survey to find out where different minibeasts live in the school grounds. They practise asking scientific questions and follow a method to investigate which conditions woodlice prefer. Pupils explore the job role of a botanist by identifying flowering plants.
Spring 1	**Uses of everyday materials (6 lessons)** Reflecting on their knowledge of different materials, children begin to explain why materials are used in certain contexts. They develop enquiry skills to investigate the properties of materials and explore the science of inventing new ones.	Spring 2	**Life cycles and health (6 lessons)** Studying the life cycles of various animals, children learn what animals need to survive and how they change over time. Pupils collect data that allows them to observe changes in their peers, while also developing their ability to take measurements and record data. They consider the role of expert scientific knowledge in careers that inform people to make healthy choices.
Summer 1	**Plant growth (6 lessons)** Using their prior knowledge of important plant structures, children explain what factors are needed for successful growth and compare how those needs vary across different plants. They grow plants from seeds and bulbs to ascertain the needs for initial development and compare this to the survival needs of plants in later growth phases. Pupils take their own measurements and reflect on historical examples to understand how conclusions can be drawn.	Summer 2	**Making Connections (6 lessons)** In this unit students will revise the key knowledge and skills from the Science curriculum and look at how it can be applied more broadly, across other curriculum areas and in their everyday lives. Students will consider the uses and implication of science today and in the future.

Year 3

Autumn 1	**Movement and nutrition (6 lessons)** Studying the human skeleton, children identify key bones and compare them to other animals explaining the role within the body. Pupils explore how changes in muscles result in movement and the implications these discoveries have in the scientific development of prosthetic limbs. They study how energy is used by the body, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.	Autumn 2	**Forces and magnets (6 lessons)** Investigating the movement of vehicles on different surfaces, children learn about the impact of friction and compare uses and drawbacks. They broaden their experience in writing scientific methods and recording data as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and use this to understand their uses.
Spring 1	**Rocks and soil (6 lessons)** Studying rocks and their properties, children learn that rock properties support classification and tell us about how rocks were formed. Pupils look at the work of paleontologists to learn about how fossils form and use models to explain the rock cycle. They plan an investigation to test rocks for particular uses and form conclusions about which soil type is most suitable for UK farmers.	Spring 2	**Light and shadows (6 lessons)** Identifying examples of luminous objects, children learn about how light travels around us and how that enables us to see. Children investigate reflection and shadow formation, creating their own shadow puppets and exploring how shadows can be used to entertain in the arts. They look at examples of pivotal scientific discoveries and the scientific methods that led to those successes.
Summer 1	**Plant reproduction (6 lessons)** Building on their prior knowledge of plant structures, children describe the functions of named parts and use evidence to explain their significance in plant development. Pupils investigate further factors that may affect the growth of plants and compete with their peers to disperse seeds in a variety of ways. They explore how seeds vary and define the type of plant they are studying, as well as looking at how seed shapes have inspired modern technologies.	Summer 2	**Making Connections (6 lessons)** In this unit students will revise the key knowledge and skills from the Science curriculum and look at how it can be applied more broadly, across other curriculum areas and in their everyday lives. Students will consider the uses and implication of science today and in the future.

Year 4

Autumn 1	**Digestion and food (6 lessons)** Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth to create their own model and investigate factors that impact our dental health. They compare human teeth to other animals' and consider this in the light of prior knowledge about predators, prey and food chains. Children take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	Autumn 2	**Electricity and circuits (6 lessons)** Exploring appliances that use electricity in their setting, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of bulbs and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety
Spring 1	**States of matter (6 lessons)** Investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically.	Spring 2	**Sound and vibrations (6 lessons)** Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. They use examples of echolocation to develop their understanding of how sound travels between objects and investigate the role of insulation to protect our ears. Pupils explore how pitch and volume can be altered and make their own musical instruments to demonstrate these principles.
Summer 1	**Classification and changing habitats (6 lessons)** Identifying different ways living things can be grouped, children make classification keys to explore which grouping methods are most effective. Pupils study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings. They play the role of naturalists and review the impact of conservation programmes.	Summer 2	**Making Connections (6 lessons)** In this unit students will revise the key knowledge and skills from the Science curriculum and look at how it can be applied more broadly, across other curriculum areas and in their everyday lives. Students will consider the uses and implication of science today and in the future.

Year 5

Autumn 1	**Mixtures and separation (6 lessons)** Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.	Autumn 2	**Properties and changes (6 lessons)** Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.
Spring 1	**Earth and space (6 lessons)** Exploring some of the key celestial bodies in our solar system, children learn the names and compare their movements. Pupils discover the relationship between the Earth's rotation and day and night, making models to represent their knowledge. They make their own sundials and consider how and why our ideas about the universe have changed so much over history.	Spring 2	**Life cycles and reproduction (6 lessons)** Studying different animals' life cycles, children learn about the significance of reproduction for a species' survival. Pupils calculate the probability of male and female turtles hatching and grow plants to compare asexual and sexual reproduction. Pupils compare fertilisation across different animals and explore the needs of a fetus. Children narrate their own documentary in the style of an inspirational naturalist.
Summer 1	**Imbalanced forces (6 lessons)** Building on their knowledge of contact forces, children explore gravity, air resistance and water resistance in more depth and consider the effect of these forces being imbalanced. They demonstrate key principles in the classroom and plan investigations to further their understanding of the effects of these forces. Pupils test their ideas using models and compete to build the most effective pulley system.	Summer 2	**Human timeline (3 lessons)** Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to record how gestation periods vary across different animals.

Year 6

Autumn 1	**Classifying big and small (6 lessons)** Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce classification keys to sort and identify organisms.	Autumn 2	**Light and reflection (6 lessons)** Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. They explore how our eyes allow us to see and how mirrors can be used in a variety of ways. Pupils investigate factors affecting the size of shadows and the laws of reflection. Children apply what they have learned about light by exploring real-life uses of mirrors.
Spring 1	**Evolution and inheritance (6 lessons)** Studying patterns through families, children learn about characteristics that are inherited from parents and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories and explore natural selection. Through modelling the variation and natural selection of Darwin's finches, they begin to explain how species evolve over time and incorporate fossil evidence that supports this theory	Spring 2	**Circuits, batteries and switches (6 lessons)** Using their prior knowledge of electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current and voltage. They make their own batteries, relate this to their knowledge of voltage and explore how battery research has impacted other scientific progress. Pupils investigate the use of switches and fuses and apply their electrical knowledge to design and produce their own electrical device.
Summer 1	**Circulation and exercise (6 lessons)** Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They play the role of healthcare professionals to diagnose patients and play games to explore how lifestyle choices affect our health. Pupils devise their own investigation to look at the relationship between exercise and heart and breathing rates, applying their knowledge of variables.	Summer 2	**Making Connections (6 lessons)** In this unit students will revise the key knowledge and skills from the Science curriculum and look at how it can be applied more broadly, across other curriculum areas and in their everyday lives. Students will consider the uses and implication of science today and in the future.